

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants :Masaharu UDAGAWA

Group Art Unit : 2611

Appl. No. : 10/598,695

Examiner : Jean B. CORRIELUS

Filed : September 8, 2006

Confirmation No. : 9058

For : TRANSMISSION DEVICE AND RADIO COMMUNICATION DEVICE

**RESPONSE TO *EX PARTE* QUAYLE ACTION**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Service Window, Mail Stop Amendment  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Sir :

In response to the outstanding Ex parte Quayle Office Action of April 10, 2009, in which a two-month shortened statutory period for response was set to expire on June 10, 2009, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections in view of the herein contained remarks.

**AMENDMENTS TO THE DRAWINGS** begin on page 2 of this paper.

**AMENDMENTS TO THE SPECIFICATION** begin on page 3 of this paper.

**AMENDMENTS TO THE CLAIMS** are reflected in the listing of claims that begin on page 5 of this paper.

**REMARKS** begin on page 8 of this paper.

An **APPENDIX** including one sheet of replacement drawing is attached hereto following page 10 of this paper.

### **AMENDMENTS TO THE DRAWINGS**

Please find appended hereto a replacement sheet of drawing containing a replacement Fig. 3, in which element number "303" is changed to ---203--- to conform to the notation employed in Fig. 2.

Attachment:

One (1) Sheet of replacement drawing containing Fig. 3

## AMENDMENTS TO THE SPECIFICATION

Please amend the Abstract of the specification, as follows:

### ABSTRACT

~~A~~ There is provided a transmission device having a preferable power efficiency and a wide control range of transmission output power. ~~A~~ At the pre-stage side of a high-frequency power amplifier (105) for changing the changes an amplitude of a high-frequency phase modulation signal [(S4)] according to a base band amplitude modulation signal [(S2)] and a gain control signal (S12), ~~there is provided a~~ , A variable gain amplifier (201) for changing changes the amplitude of the high-frequency phase modulation signal [(S4)] according to the base band amplitude modulation signal [(S2)] and the gain control signal [(S12)] , so that the base band amplitude modulation signal [(S2)] is supplied to a variable gain amplifier [(203)] via a linear-log ~~conversion unit (206)~~ converter.

Please amend paragraph [0017] of the filed specification, as follows:

[0017] Another aspect of the transmission apparatus of the present invention adopts a configuration further having a supply voltage supplying section that, in the first operation mode, selectively supplies a supply voltage according to the baseband amplitude modulation signal and the gain control signal or a predetermined fixed supply voltage to the high frequency power amplifier according to first and second operation modes, wherein, in the first operation mode, the supply voltage changed according to the baseband amplitude modulation signal and the gain control signal is supplied to the high frequency power amplifier so that the high frequency power amplifier operates as a nonlinear amplifier, and thereby amplitude modulation is performed by the high frequency power amplifier according to the baseband amplitude modulation signal and the gain control signal. In the second operation mode, the fixed supply voltage is supplied to the high frequency power amplifier so that the high frequency power amplifier operates as a linear amplifier, and amplitude modulation is performed by the variable gain amplification section according to the baseband amplitude modulation signal and the gain control signal the first supply voltage, which varies according to the baseband amplitude modulation signal and the gain control signal, to a high frequency power amplifier, and that, in a second operation mode, supplies a second supply voltage, which is fixed, to the high frequency power amplifier. The high frequency power amplifier operates as a non-linear amplifier using the first supply voltage in the first operation mode and operates as a linear amplifier using the second supply voltage in the second operation mode.

## AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application.

### Listing of Claims:

1 (currently amended). A transmission apparatus using a polar modulation scheme, comprising:

an amplitude phase ~~separation-section~~ separator that separates baseband modulation data into a baseband amplitude modulation signal and a baseband phase modulation signal;

a phase ~~modulation-section~~ modulator that modulates a high frequency carrier signal based on the baseband phase modulation signal and forms a high frequency phase modulation signal;

a variable gain ~~amplification-section~~ amplifier that is provided in a later stage of said phase ~~modulation-section~~ modulator and amplifies the high frequency phase modulation signal; and

a high frequency power amplifier that is provided in a later stage of said variable gain ~~amplification-section~~ amplifier and amplifies power of the high frequency phase modulation signal amplified by said variable gain ~~amplification-section~~ amplifier ,

wherein said variable gain ~~amplification-section~~ amplifier comprises:

a linear-log ~~conversion-circuit~~ converter that linear-log converts the baseband amplitude modulation signal; and

a variable gain amplifier that amplifies the high frequency phase modulation signal based on the linear-log converted baseband amplitude modulation signal and a gain control signal.

2 (currently amended). The transmission apparatus according to claim 1, wherein:

said variable gain ~~amplification section~~ amplifier further comprises an adder ~~circuit~~ that adds the baseband amplitude modulation signal linear-log converted by said linear-log ~~conversion circuit~~ converter and the gain control signal; and

said variable gain amplifier amplifies the high frequency phase modulation signal based on the signal added by said adder ~~circuit~~ .

3 (currently amended). The transmission apparatus according to claim 1, further comprising a supply voltage ~~supplying section~~ supplier that supplies a first supply voltage, that varies according to the baseband amplitude modulation signal and the gain control signal to said high frequency power amplifier in a first operation mode, and supplies a second supply voltage, that is fixed, to said high frequency amplifier in a second operation mode, wherein said high frequency power amplifier operates as a non-linear amplifier using the first supply voltage in the first operation mode and operates as a linear amplifier using the second supply voltage in the second operation mode ~~selectively supplies a supply voltage according to the baseband amplitude modulation signal and the gain control signal or a predetermined fixed supply voltage to said high frequency power amplifier according to first and second operation modes, wherein:~~

~~in the first operation mode, the supply voltage changed according to the baseband amplitude modulation signal and the gain control signal is supplied to said high frequency power amplifier so that said high frequency power amplifier operates as a nonlinear amplifier, and amplitude modulation is performed by said high frequency power amplifier according to the baseband amplitude modulation signal and the gain control signal; and~~

in the second operation mode, the fixed supply voltage is supplied to said high frequency power amplifier so that said high frequency power amplifier operates as a linear amplifier, and amplitude modulation is performed by said variable gain amplification section according to the baseband amplitude modulation signal and the gain control signal .

4 (currently amended). A radio communication apparatus, comprising:  
a transmission ~~processing section~~ processor that comprises the transmission apparatus according to claim 1;  
a reception ~~processing section~~ processor that demodulates a received signal;  
an antenna; and  
a transmission/reception ~~switching section~~ switcher that switches between supplying a transmission signal from said transmission ~~processing section~~ processor to said antenna and supplying the received signal from said antenna to said reception ~~processing section~~ processor.

## REMARKS

Re-examination and allowance of the present application is respectfully requested.

Initially, Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority, and for confirming receipt of the certified copy of the priority document. Applicant further thanks the Examiner for considering all the document cited in the Information Disclosure Statement filed on December 14, 2006.

In the Office Action, the Examiner objects to the drawings, noting a typographic error with respect to Fig. 3. Applicants thank the Examiner for noting the typographic error, and herewith submit a replacement sheet of drawing that revises Fig. 3 to change "203" to ---303--- in order to be consistent with Fig. 2. In view of the submission of replacement Fig. 3, Applicants submit that the ground for the objection to the drawings no longer exist, and respectfully request that this ground of objection be withdrawn.

The specification of the present application is objected to as containing an informality in paragraph [0017]]. By the current amendment, Applicants amend paragraph [0017] of the specification, paying particular attention to the concerns raised by the Examiner. In view of this amendment, Applicants submit that the ground for this objection to the specification no longer exists, and thus, respectfully requests that it be withdrawn.

Claim 3 stands objected to as containing an informality therein. Applicants herewith revise claim 3, paying particular attention to the concern raised by the Examiner. In view of the present amendment of claim 3, Applicants submit that informality noted by the Examiner no longer exists. Accordingly, the Examiner is respectfully requested to withdraw this ground of objection.



Applicants thank the Examiner for indicating that claims 1, 2 and 4 are allowable, and that claim 3 would be allowable when the objection (discussed above) is overcome. By the current amendment, Applicant has amended claim 3 to overcome the objection by the Examiner. Thus, Applicants submit that claims 1-4 are now allowable. Further, Applicants have reviewed all the pending claims and made minor revisions thereto that do not affect the scope of the claims but which place the claims in better U.S. form. The Examiner is respectfully requested to confirm the allowability of the pending claims in the next official communication.

Applicants wish to clarify the record with respect to the basis for the patentability of claims in the present application. In this regard, while Applicants do not disagree with the Examiner's indication that certain identified features are not disclosed by the references, as noted by the Examiner, Applicants further wish to clarify that the claims in the present application recite a combination of features, and the basis for patentability of these claims is based on the totality of the features recited therein.

#### SUMMARY AND CONCLUSION

In view of the fact that none of the art of record, whether considered alone or in combination, discloses or suggests the present invention as now defined by the pending claims, and in further view of the above amendments and remarks, reconsideration of the Examiner's action and allowance of the present application are respectfully requested and are believed to be appropriate.

Should the Commissioner determine that an extension of time is required in order to render this response timely and/or complete, a formal request for an extension of time, under 37 C.F.R. §1.136(a), is herewith made in an amount equal to the time period required to render this response timely and/or complete. The Commissioner is authorized to charge any required extension of time fee under 37 C.F.R. §1.17 to Deposit Account No. 19-0089.

If there should be any questions concerning this application, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully Submitted,  
Masaharu UDAGAWA



Bruce H. Bernstein  
Reg. No. 29027

June 3, 2009  
GREENBLUM & BERNSTEIN, P.L.C.  
1950 Roland Clarke Place  
Reston, VA 20191  
(703) 716-1191

**Steven Wegman**  
**Reg. No. 31,438**